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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
1998 Biennial Regulatory Review – 47 C.F.R. Part 90 – Private Land Mobile Radio Services	)	WT Docket No. 98-182 RM-9222
	)	
Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Services	)	PR Docket No. 92-235

COMMENTS OF MOTOROLA, INC.

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TABLE OF CONTENTS

Page

I. Summary 2

II. The Commission Should Amend Section 90.35(c)(60)(i) To Permit Use Of The Listed Frequencies At Any Location For Voice and Non-Voice Operation, And Should Permit The Use Of These Frequencies For Any Purpose 3

III. The Public Interest Will Be Served By Adoption Of The Commission's Proposals To Extend The License Term Applicable To Part 90 PLMRS Licenses And The Time In Which PLMRS Facilities Must Be Placed In Operation 5

IV. Motorola Supports Elimination Of The Licensing Requirement As Applied To Specific Frequencies Currently Allocated To The Business/Industrial Pool And Reallocation Of These Frequencies To Part 95 Of The Rules 7

V. The Definitions Of "Centralized" And "Decentralized" Trunking Should Be Revised To Incorporate All Types Of Trunking Protocols That Fit Within These Distinctions 10

VI. The Commission Should Direct The Telecommunications Industry Association ("TIA") To Facilitate An Industry-Wide Effort To Develop Specific Recommendations Concerning The Introduction Of The Adjacent Channel Coupled Power ("ACCP") Approach For Limiting Ou-Of-Band Emissions In Appropriate PLMR Frequency Bands 13

VII. Conclusion 15

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Motorola, Inc. ("Motorola") hereby submits these comments in response to the Notice of Proposed Rulemaking ("*Notice*") issued by the Commission in the above-captioned proceeding on October 20, 1998.[1] The *Notice* seeks commenters' views on a number of proposals designed to simplify, streamline, and update the rules governing Part 90 Private Land Mobile Radio Services ("PLMRS").

Motorola commends the Commission for initiating this proceeding, which contains a number of proposals that, if adopted, have significant potential to increase the efficiency of PLMRS operations and eliminate unnecessary burdens on licensees and members of the Commission staff.

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[1] *1998 Biennial Regulatory Review – 47 C.F.R. Part 90 – Private Land Mobile Radio Services, Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Services,* FCC 98-251 (rel. Oct. 20, 1998) (Notice of Proposed Rulemaking).

I. Summary

As discussed in detail below, to help make the goals of this proceeding a reality, Motorola urges the Commission to proceed in a manner consistent with the following recommendations:

- The Commission should adopt its proposal to amend Section 90.35(c)(60)(i) of the rules to permit use of the so-called "dock" or "cargo" frequencies referenced therein at any location for voice and non-voice operation. In addition, Motorola supports the suggestion in the *Notice* that the limitation requiring these frequencies to be used "for communications concerned with cargo handling from a dock, or a cargo handling facility, to a vessel alongside" be deleted. Motorola recommends that low power operations be allowed on the listed frequencies at any location for any use.

- The Commission should adopt its proposal to extend the license term for all stations authorized under Part 90 to ten years.

- The Commission should adopt its proposal to extend to one year the time in which all Part 90 stations must be placed in operation. Relatedly, Motorola agrees that Section 90.155 should be amended to permit wide-area public safety systems below 800 MHz to apply for extended implementation authority under terms and conditions similar to those available to public safety systems above 800 MHz.

- The Commission should adopt its proposal to eliminate the licensing requirement for the five low power VHF frequencies identified in the *Notice* – 151.820 MHz, 151.880 MHz, 151.940 MHz, 154.570 MHz, and 154.600 MHz. Consistent with their current usage, these frequencies should be redesignated as a new category available for low power, unlicensed industrial/business use under Part 95 of the rules. In addition, Motorola suggests that four UHF frequencies – 467.850 MHz, 467.875 MHz, 467.900 MHz, and 467.925 MHz – be made available for low power, unlicensed industrial/business operations and redesignated for inclusion in this same category.

- The Commission should clarify the definitions of "centralized" and "decentralized" trunking to incorporate all types of trunking protocols that fit within these distinctions.

- The Commission should direct the Telecommunications Industry Association ("TIA") to facilitate an industry-wide effort to develop specific recommendations concerning the introduction of the Adjacent Channel Coupled Power ("ACCP") approach for limiting out-of-band emissions in appropriate PLMR frequency bands.

II. The Commission Should Amend Section 90.35(c)(60)(i) To Permit Use Of The Listed Frequencies At Any Location For Voice and Non-Voice Operation, And Should Permit The Use Of These Frequencies For Any Purpose

In the *Notice*, the Commission observes that there has been a substantial amount of confusion concerning the operations permitted on the thirty frequencies listed in Section 90.35(c)(60)(i).[2] The current rule authorizes these channels "for use in communications concerned with cargo handling from a dock, or a cargo handling facility, to a vessel alongside."[3] The original eight frequencies designated for use in accordance with Section 90.35(c)(60)(i), which increased to thirty as a result of channel splitting in the *Refarming Proceeding*, were made available for low power, general use as well as for shared use with the Maritime Services for cargo handling. As a result, the Commission notes, it appears that these frequencies could be used anywhere for non-voice digital remote control, data, and telemetry operations as well as voice communications.[4] Accordingly, the Commission proposes to amend Section 90.35(c)(60)(i) to indicate that, in addition to permitting their use at any location for low power, non-voice operation, voice operation will be allowed when these frequencies are specifically used for cargo handling purposes.[5] The Commission also seeks comment on whether it should

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[2] *Notice*, ¶ 5.

[3] 47 C.F.R. § 90.35(c)(60)(i).

[4] *Notice*, ¶ 6.

[5] *Id.*, ¶ 7.

eliminate the distinction between cargo handling and other uses and generally allow any low power use of these frequencies.[6]

Motorola supports the proposal to amend Section 90.35(c)(60)(i) to indicate that the listed frequencies may be used for low power non-voice operation at any location. Motorola also supports the proposal to permit low power voice operations on the listed channels. In addition, Motorola supports amendment of Section 90.35(c)(60)(i) to eliminate the limitation requiring the listed frequencies to be used for cargo handling purposes. Instead, low power voice and non-voice operations should be permitted on these frequencies in any location, for any purpose.

As the *Notice* observes, numerous technical limitations apply to the listed frequencies,[7] protecting against any risk of increased interference as a result of greater flexibility in permissible operations. Similarly, the applicable low power limits guard against any potential for harmful interference. Moreover, as evidenced by PCIA's query, there is demand for these frequencies beyond the limited purposes identified in Section 90.35(c)(60)(i).[8] In light of this demand, Motorola submits that it is inappropriate to reserve these channels for the limited uses specified in the rules. Accordingly, Motorola urges the Commission to adopt rule changes permitting low power operations on these frequencies at any location for any use.

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[6] *Id.*

[7] *Notice,* ¶ 6 and n.14.

[8] *See id.,* ¶ 5.

III. The Public Interest Will Be Served By Adoption Of The Commission's Proposals To Extend The License Term Applicable To Part 90 PLMRS Licenses And The Time In Which PLMRS Facilities Must Be Placed In Operation

Section 90.149 – License term. The *Notice* observes that, in accordance with Section 90.149 of the Commission's rules, PLMRS licenses are currently issued for a period not to exceed five years from the date of grant, modification, or renewal.[9] In contrast, licenses classified as commercial mobile radio service ("CMRS") are issued for a ten-year license term.[10] In the *Notice*, the Commission proposes to lengthen the license term for all Part 90 authorizations, including PLMRS licenses, to ten years. The Commission observes that several public interest benefits will result from this action, including significantly reducing the licensing and renewal costs borne by PLMRS licensees and lessening the administrative burden on the Commission staff.[11]

Motorola supports the proposal to establish a ten-year license term for all Part 90 licensees. Motorola agrees that the adoption of rule changes to this effect will serve the public interest by reducing costs and administrative burdens for licensees and the FCC staff.

To further facilitate the effectiveness of this proposal, the Commission should permit PLMRS licensees that hold multiple station-by-station licenses in the same service to select a uniform renewal period for all of their licenses. In particular, on expiration of each license term, the licensee should be permitted to select any date as the expiration of its new license term,

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[9] *Id.*, ¶ 9.

[10] *Id.*

[11] *Id.*

provided that the term does not exceed ten years in duration. Similar action was taken when the license term for Part 90 CMRS services was extended from five to ten years[12] and, in Motorola's view, consolidation of license terms in this fashion reduces licensees' and the Commission's processing burdens and helps eliminate the potential for missed renewal deadlines.[13]

Section 90.155 – Time in which station must be placed in operation. For reasons similar to those discussed above, Motorola supports the Commission's proposal to extend from eight to twelve months the time in which PLMRS stations must be placed in operation.[14] As observed in the *Notice*, rule changes to this effect will conform the implementation time period for all Part 90 stations, with the exception of those instances where a request for extended implementation has been granted.[15] In addition, adoption of a standard, one-year period for placing stations in operation will reduce the filing of extension requests and, as a result, simplify the regulatory requirements applicable to PLMRS licensees and decrease the administrative burdens placed on licensees and the Commission.

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[12] *See Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services,* 9 FCC Rcd 7988, 8157 (1994) (Third Report and Order), *recon. pending.*

[13] In response to the inquiry in the *Notice*, *see Notice,* ¶ 10, there are no "drawbacks" associated with the adoption of rule changes lengthening the license term for all Part 90 services. This is particularly true in view of the fact that Section 90.157 ensures that licensed facilities are used effectively, regardless of the license term, by calling for the automatic cancellation of the license for any station that is taken out of service for one year or more. *See* 47 C.F.R. § 90.157 (setting forth a one-year discontinuance of operation period for non-SMR Part 90 licensees).

[14] *Notice,* ¶ 11.

[15] *Id.*

Consistent with the above recommendation, Motorola also supports APCO's request that extended implementation be available to public safety systems operating on frequencies below 800 MHz on the same terms and conditions available to public safety systems operating above 800 MHz.[16] Given the rule changes adopted in the *Refarming Proceeding*, which should lead to the introduction of larger, more complex public safety systems on frequencies below 800 MHz, there is no justification for requiring systems below 800 MHz to be fully approved and funded before extended implementation periods can be approved, while systems above 800 MHz are not subject to this requirement. In addition, Motorola echoes APCO's observation that the suggested rule changes better recognize the realities of the process for funding of wide-area public safety systems and, as a result, should help foster effective deployment of these systems.[17]

IV. Motorola Supports Elimination Of The Licensing Requirement As Applied To Specific Frequencies Currently Allocated To The Business/Industrial Pool And Reallocation Of These Frequencies To Part 95 Of The Rules

The *Notice* indicates that the Commission recently proposed to delete the frequency coordination requirement applicable to five low power VHF frequencies in the Industrial/Business Pool, and asks whether this proposal, and the fact that frequency coordinators do not typically know the precise location of users in these frequencies, calls for further deregulation, *i.e.*, elimination of the licensing requirement applicable to these frequencies altogether.[18]

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16 *See id.*, ¶ 12.

17 *See id.*

18 *Id.*, ¶¶ 31-32.

Motorola supports further deregulation of this nature. Significant demand exists for use of the frequencies in question for low power, unlicensed applications. As evidenced in the Family Radio Service context, consumers – including businesses and individuals – are less inclined to participate in radio services that require individual licenses, particularly where FCC regulatory and application fees are likely to constitute an excessively high percentage of what should be a relatively low cost product.[19] In addition, given the low power restrictions applicable to these frequencies and the fact that the station licenses do not identify operational service areas, licensing serves little, if any, purpose.[20] Accordingly, Motorola recommends that the licensing requirements applicable to these frequencies be eliminated.

Motorola suggests that the frequencies in question be reallocated to Part 95 and included in a new radio service category, the Low Power Industrial/Business Radio Service, within the Citizens Band Radio Services. As recognized in connection with the establishment of the Family Radio Service, operations in the Citizens Band Radio Services may be authorized by rule, as opposed to issuance of licenses, in accordance with Section 307(e) of the Communications Act.[21] Significantly, Section 307(e)(3) of the Act gives the FCC broad discretion in defining "citizens band radio service."[22] Thus, the Commission clearly has authority to reallocate the

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[19] *See Amendment of the Commission's Rules to Establish a Very Short Distance Two-way Voice Radio Service,* 11 FCC Rcd 12977, 12983 (1996) (Report and Order) [hereinafter *Family Radio Service Report and Order*].

[20] *See Notice,* ¶ 32.

[21] *See Family Radio Service Report and Order,* 11 FCC Rcd at 12982. *See also* 47 U.S.C. § 307(e).

[22] *See* 47 U.S.C. § 307(e)(3).

industrial/business frequencies identified in the *Notice* to the Citizens Band Radio Services if it concludes that the public interest will be served by such action.

Reallocation of the frequencies at issue to the Commission's other unlicensed radio service, the Radio Control Radio Service, is inappropriate because that service is limited to "one-way, short distance non-voice communications . . . for the operation of devices at remote locations."[23] Similarly, the frequencies at issue should not be reallocated to the subcategory Citizens Band Radio Service, the Family Radio Service, or the Low Power Radio Service, three existing service categories within the Citizens Band Radio Services, because of differences in technical characteristics. In addition, the frequencies identified in the *Notice* are already being used extensively for business and industrial communications as opposed to the types of communications contemplated in the subcategory Citizens Band Radio Service, the Family Radio Service, or the Low Power Radio Service.[24]

Because the power and other technical limits applicable to the Industrial/Business Pool frequencies differ from those applied to frequencies in the various service categories within the CB Radio Services, a new service category should be established for these channels. Motorola recommends calling that category the "Low Power Industrial/Business Service." The channels in

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[23] *See* 47 C.F.R. § 95.201.

[24] *See* 47 C.F.R. § 95.401(a) (describing the Citizens Band Radio Service as "a private, two-way, short-distance voice communications service for personal or business activities of the general public," and indicating that the service may also be used for voice paging). The Family Radio Service and the Low Power Radio Service are available "for facilitating family and group activities," and for "providing auditory assistance to persons with disabilities, persons who require language translation, and persons in educational settings, health care assistance to the ill, law enforcement, and point-to-point network control communications for Automated Marine Telecommunications coast stations," respectively.

this category would be available for use by Industrial/Business eligibles for low power business activities in accordance with the technical parameters that currently apply to these frequencies under Part 90.[25] This service would be listed as a fourth service under the Citizens Band Radio Services delineated in Section 95.401.

Motorola suggests that the following UHF frequencies are also appropriate for reallocation to the Low Power Industrial/Business Service for unlicensed, low power, business and industrial use: 467.850 MHz, 467.875 MHz, 467.900 MHz, and 467.925 MHz. Similar to the VHF channels discussed above, these frequencies have been serving low-tier business needs for several decades. The technical characteristics are also similar; these frequencies are used for low power, short-range communications. As indicated in the *Notice*, these four frequencies are among the so-called "dot" frequencies. This name refers to a frequency identification code developed by equipment manufacturers to signal the frequencies on which various radio products operate. Each of the "dot" frequencies is referred to by a color name, such as the "brown dot" or the "yellow dot," so that consumers know the frequencies used by radio devices they purchase.

V. The Definitions Of "Centralized" And "Decentralized" Trunking Should Be Revised To Incorporate All Types Of Trunking Protocols That Fit Within These Distinctions

As pointed out in the *Notice*, the distinction between "centralized" and "decentralized" trunking is extremely important because Section 90.187 of the Commission's rules applies only to *centralized* trunking systems operating between 150 MHz and 512 MHz.[26] Section 90.187 sets

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[25] *See* 47 C.F.R. § 90.35(b).

[26] *Notice*, ¶ 23.

forth certain conditions for trunked operations, including a requirement that (1) applicants or licensees operating in the 470-512 MHz band meet applicable loading requirements and have exclusive use of their frequencies in their service area, or (2) if the applicant or licensee does not have an exclusive service area, all frequency coordination requirements are complied with and consent is obtained from all licensees in accordance with the specifications contained in Sections 90.187(b)(2)(i)-(iii).[27] Decentralized trunking is not subject to these same requirements.

The *Notice* indicates that the Commission has received several inquiries about the distinction between centralized and decentralized trunking in connection with the requirements of Section 90.187. To help clarify the scope of this rule, the Commission proposes to define "centralized" and "decentralized" trunking as follows. The Commission suggests that, "[i]n a centralized trunked system, the base station provides dynamic channel assignments by automatically searching for and assigning to a user an open channel within that system."[28] The Commission further indicates that, "[i]n a decentralized trunked system, which is also a system of dynamic channel assignment, the mobile units continually monitor the system's assigned channels until an unused channel is found. This channel is then utilized for communications."[29] With regard to decentralized trunking, the Commission goes on to state that, "[t]his type of dynamic channel assignment is not trunking in the traditional sense because the system does not require repeaters specifically designed for trunked operations."[30]

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[27] *See generally* 47 C.F.R. § 90.187.

[28] *Notice*, ¶ 23.

[29] *Id.*

[30] *Id.*

The proposed definition of "centralized" trunking describes a process – a base station providing dynamic channel assignments by automatically searching for and assigning to a user an open channel within that system – that is true of virtually all trunking systems, whether centralized or decentralized. Accordingly, Motorola recommends that more emphasis be placed on the fact that the user is assigned an open channel potentially regardless of any co-channel use outside the system on that channel. This is the principal distinction between centralized trunked systems and decentralized trunked systems. To capture this difference, Motorola suggests the following definition of a centralized trunked system:

> In a centralized trunked system, the base station controller provides dynamic channel assignments by automatically searching for and assigning to a user an open channel within that system, possibly without regard to any co-channel activity that is engaged outside of the trunked system.

In addition, the proposed definition of a decentralized trunked system describes a scenario that is true only for scan-based decentralized trunked systems. As such, it fails to take into account other decentralized trunked systems that operate via a controller installed into a base station repeater. To correct this omission, Motorola suggests that the definition be modified to read as follows:

> In a decentralized trunked system, which is also a system of dynamic channel assignment, the base station controller or the mobile unit continually monitors the system's assigned channels for activity both within the trunked system as well as co-channel activity outside the trunked system until an open channel is found. The channel is then utilized for communications.

Motorola recommends eliminating the remainder of the definition proposed in the *Notice* (*i.e.*, "[t]his type of dynamic channel assignment is not trunking in the traditional sense because the system does not require repeaters specifically designed for trunked operations") because it is not applicable to all types of decentralized trunked systems and, further, does not aid in the

description of a decentralized trunked system. This description should focus on the system's ability to recognize co-channel activity outside of the trunked system rather than whether a specific repeater is needed.

VI. The Commission Should Direct The Telecommunications Industry Association ("TIA") To Facilitate An Industry-Wide Effort To Develop Specific Recommendations Concerning The Introduction Of The Adjacent Channel Coupled Power ("ACCP") Approach For Limiting Out-Of-Band Emissions In Appropriate PLMR Frequency Bands

In the *Notice*, the Commission seeks comment on whether it should apply the concept of ACCP measurements in lieu of emission masks for all Part 90 frequency bands.[31] ACCP is an alternative approach to emission masks for limiting out-of-band emissions, and relies on calculating the amount of radio energy directly inserted into the adjacent channel spectrum. In Motorola's view, direct measurements of interfering energy are more meaningful than relying on emission masks and eliminate the bias that traditional emission masks have in favor of analog transmissions versus digital modulation techniques.[32]

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[31] *Id.*, ¶ 35.

[32] The FCC's traditional emission masks typically require analog emissions to begin attenuating while still within the channel bandwidth in order to provide adequate interference protection to adjacent channel receivers. Digital modulations, however, can be filtered such that more of the available channel bandwidth can be used while still providing adequate protection to adjacent channel operations. Providing digital modulations with a broader "flat top" emission within the channel improves spectrum efficiency. These facts led the FCC to adopt a new emission mask for 800 MHz wide-area systems that does not require any attenuation within the channel bandwidth. *See Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band*, 11 FCC Rcd 1463, 1518 (1995) (First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rule Making).

As indicated in the *Notice*, Motorola is a strong advocate of the ACCP concept and applauds the Commission's decision to adopt the use of ACCP in the new public safety band at 746-806 MHz.[33] Although Motorola did subsequently request that the FCC clarify the final rules adopted in that proceeding, Motorola's suggestions are technical in nature and are only intended to reduce the possibility of confusion or uncertainty in the equipment authorization process. Motorola remains an unbridled supporter of the ACCP concept and urges the FCC to proceed quickly to finalize the ACCP provisions for 746-806 MHz.

Motorola therefore strongly supports the extension of this policy into other Part 90 frequency bands. Motorola is, however, forced to conclude that it may be premature to do so at this time. The implementation of ACCP procedures requires the derivation of interference protection criteria based on the interference rejection capabilities of land mobile receivers. Developing such criteria for equipment operating in the 746-806 MHz band is less onerous than the existing Part 90 bands because there are no incumbent technologies that could be negatively affected through the development of new interference protection criteria. By contrast, the other Part 90 bands contain a plethora of modulation types and equipment platforms, each having a large base of existing customers. Thus, it is more critical that the criteria for these technologies, some of which Motorola does not manufacture, be chosen with the full and open participation of all manufacturers so that no particular technology or manufacturer is unnecessarily harmed.

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[33] *See generally Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, Establishment of Rules and Requirements For Priority Access Service* WT Docket No. 96-86, FCC 98-191, (rel. Sept. 29, 1998) (First Report and Order and Third Notice of Proposed Rule Making).

For these reasons, Motorola suggests that the Commission defer consideration of this issue until after an industry group, such as the Telecommunications Industry Association ("TIA"), develops a set of recommendations on the necessary protection required by all types of receivers as well as the proper measurement techniques to be used in the FCC's equipment authorization process. Because much of this work has already been completed in the development of a TIA technical bulletin for the coordination of differing technologies in the *Refarming* bands,[34] this process should not take longer than six months to conclude. Such a process is necessary to ensure that all manufacturers participate in the development of new rules that directly affect whether their products remain in compliance with FCC rules.

VII. Conclusion

As discussed in the foregoing comments, Motorola is pleased by the initiation of this proceeding. The Commission has advanced a number of proposals designed to streamline the rules applicable to PLMRS systems, clarify confusing rules, and eliminate unnecessary regulatory requirements. In these comments, Motorola has advanced several recommendations designed to assist the Commission in this process. Motorola submits that the adoption of rule changes consistent with these recommendations will serve the public interest by improving the

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[34] *Wireless Communications Systems – Performance in Noise and Interference-Limited Situations – Recommended Methods for Technology-Independent Modeling, Simulation, and Verification,* TIA TSB-88, January 1, 1998.

efficiency of PLMRS operations and easing the burden on FCC licensees as well as members of the Commission staff.

Respectfully submitted.

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